

Some components and bioactive properties of gel and green leaf parts of *A. vera*

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[Abstract](#)

Aloe vera (L.) Burm. f., known as the plant of immortality, is a perennial and succulent plant. This study aimed to investigate potential alternatives to synthetic antibiotics and antioxidants due to the increasing resistance of microorganisms to these drugs and the negative effects of synthetic antioxidants. So phytochemical characteristics and antimicrobial activities of the gel and green leaf parts of *A. vera* have been measured. Vitamin A, E, lycopene, β -carotene, and 4-hydroxyneonal (4-HNE) that were determined by high-performance liquid chromatography (HPLC) were found to be 0.17 ± 0.03 , 3.6 ± 0.57 , 7.6 ± 1.50 , 0.63 ± 0.14 , and 5.6 ± 1.07 $\mu\text{g/g}$ in the green leaf part of *Aloe vera* and 0.26 ± 0.05 , 1.1 ± 0.09 , 0.07 ± 0.01 , and 3.68 ± 0.74 $\mu\text{g/g}$ in the gel, respectively. Total phenolics, flavonoids, 2,2'-Azino-bis-3-ethylbenzothiazoline-6-sulfonic (ABTS), and 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity that were determined using a UV-Vis spectrophotometer were found to be 0.17 ± 0.01 , 0.96 ± 0.15 , 133.9 ± 7.08 , and 25.1 ± 2.28 in the green leaf part of the plant, while they were found to be 407.95 ± 9.42 , 0.95 ± 0.67 , 0.04 ± 0.00 , and 0.26 ± 0.05 in the gel, respectively. The antimicrobial activities of *A. vera* were determined by the disc-diffusion method. The green leaf part of *A. vera* had the most powerful effect on *Bacillus megaterium*, with an inhibition zone measuring 11.6 ± 0.32 mm in diameter. While the gel had the strongest effect on *Staphylococcus aureus*, with a 20.0 ± 0.29 mm zone of inhibition. Therefore, we can conclude that *A. vera* serves as a valuable source of antioxidant and antimicrobial activity, suitable for both medicinal and cosmetic applications.

Keywords: *Aloe Vera*; Antimicrobial; Antioxidant; Phytochemical Composition; Vitamins